



US005646997A

United States Patent [19]
Barton

[11] **Patent Number:** **5,646,997**
 [45] **Date of Patent:** **Jul. 8, 1997**

[54] **METHOD AND APPARATUS FOR EMBEDDING AUTHENTICATION INFORMATION WITHIN DIGITAL DATA**

[76] **Inventor:** **James M. Barton**, 101 Sund Ave., Los Gatos, Calif. 95032

[21] Appl. No.: **357,713**

[22] Filed: **Dec. 14, 1994**

[51] Int. Cl.⁶ **H04L 9/00**

[52] U.S. Cl. **380/23; 380/25; 380/30; 380/49**

[58] **Field of Search** **380/2, 23, 25, 380/30, 49**

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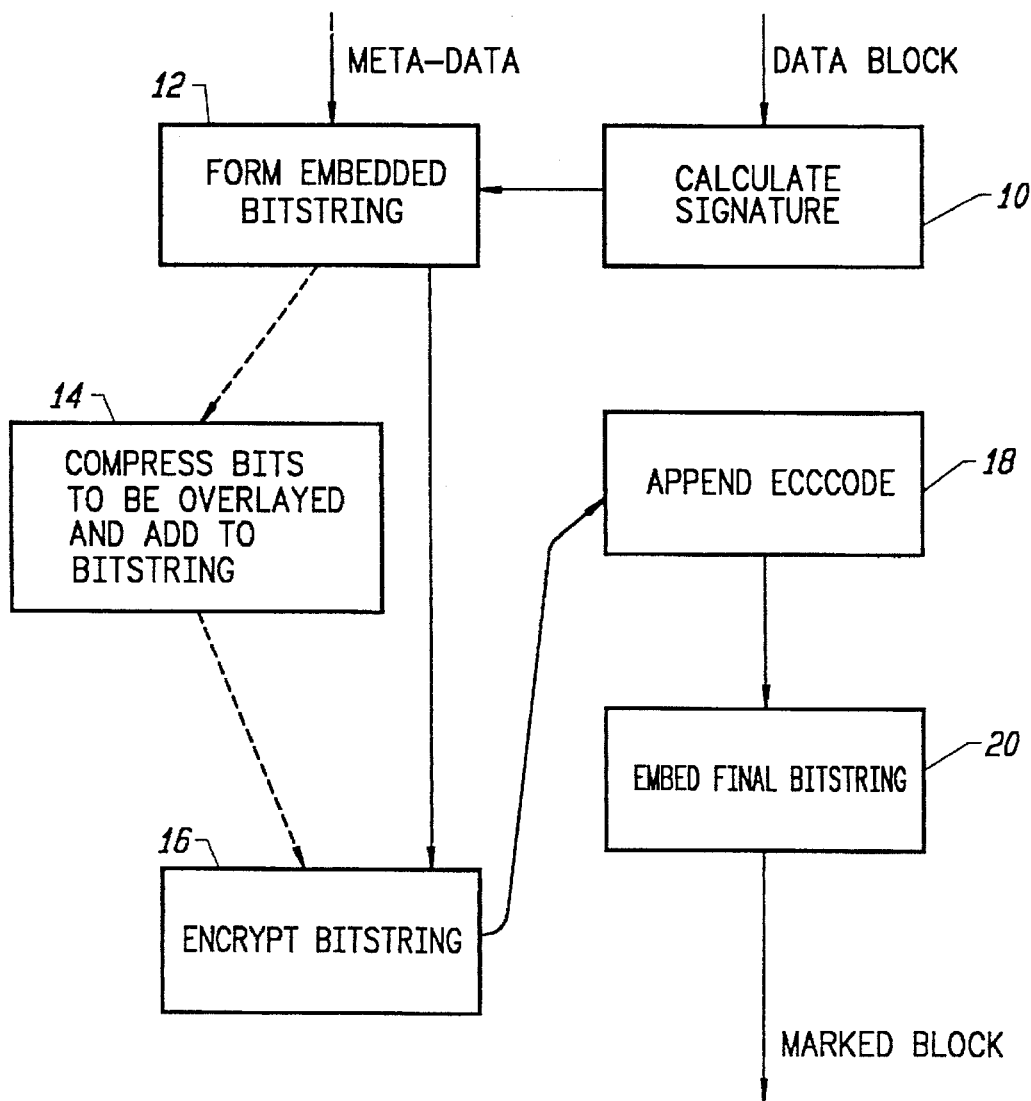
Primary Examiner—Bernarr E. Gregory

Attorney, Agent, or Firm—Michael A. Glenn

[57] **ABSTRACT**

Arbitrary digital information is embedded within a stream of digital data, in a way that avoids detection by a casual observer and that allows a user to determine whether the digital data have been modified from their intended form. The embedded information may only be extracted as authorized and may be used to verify that the original digital data stream has not been modified.

20 Claims, 3 Drawing Sheets





US005912972A

United States Patent

[19]

Barton

[45]

[11]

Patent Number:

5,912,972

[45]

Date of Patent:

Jun. 15, 1999

[54] METHOD AND APPARATUS FOR EMBEDDING AUTHENTICATION INFORMATION WITHIN DIGITAL DATA

[75] Inventor: James M. Barton, Los Gatos, Calif.

[73] Assignee: Sony Corporation, Japan

[21] Appl. No.: 08/824,174

[22] Filed: Mar. 26, 1997

Related U.S. Application Data

[63] Continuation of application No. 08/357,713, Dec. 14, 1994, Pat. No. 5,646,997.

[51] Int. Cl.⁶ H04L 9/00

[52] U.S. Cl. 380/23; 380/25; 380/30; 380/49; 380/50; 380/54

[58] Field of Search 380/2, 4, 5, 10, 380/23, 25, 30, 49, 50, 54, 59

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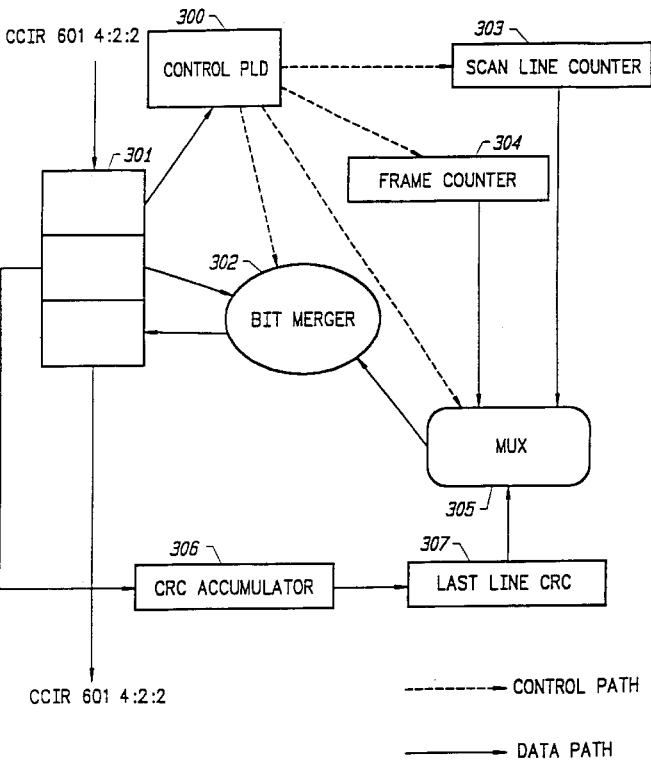
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Primary Examiner—Bernarr E. Gregory
Attorney, Agent, or Firm—Lerner, David, Littenberg, Krumholz & Mentlik, LLP

[57] ABSTRACT

Arbitrary digital information is embedded within a stream of digital data, in a way that avoids detection by a casual observer and that allows a user to determine whether the digital data have been modified from their intended form. The embedded information may only be extracted as authorized and may be used to verify that the original digital data stream has not been modified.

8 Claims, 3 Drawing Sheets





US006233684B1

(12) **United States Patent**
Stefik et al.

(10) **Patent No.:** **US 6,233,684 B1**
(45) **Date of Patent:** **May 15, 2001**

(54) **SYSTEM FOR CONTROLLING THE DISTRIBUTION AND USE OF RENDERED DIGITAL WORKS THROUGH WATERMAKING**
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(75) **Inventors:** **Mark J. Stefik, Portola Valley; Glen W. Petrie, Los Gatos; Steve A. Okamoto, Torrance; Nicholas H. Briggs, Palo Alto, all of CA (US)**

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(73) **Assignee:** **Contentaguard Holdings, Inc., Wilmington, DE (US)**

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(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(List continued on next page.)

(21) **Appl. No.:** **08/948,893**
(22) **Filed:** **Oct. 10, 1997**

Related U.S. Application Data

(60) **Provisional application No. 60/039,275, filed on Feb. 28, 1997.**

(51) **Int. Cl.⁷** **H04N 7/167**
(52) **U.S. Cl.** **713/176; 380/9; 380/54**
(58) **Field of Search** **380/51, 52, 55, 380/4, 54; 382/232; 713/176**

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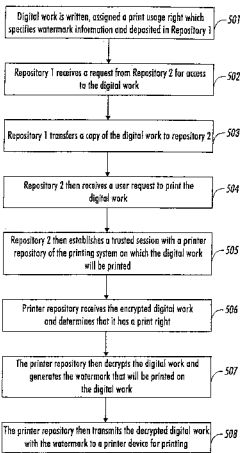
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Primary Examiner—Thomas R. Peeso
Assistant Examiner—Todd Jack
(74) *Attorney, Agent, or Firm*—Nixon Peabody LLP; Marc S. Kaufman

(57) **ABSTRACT**

A trusted rendering system for use in a system for controlling the distribution and use of digital works. A trusted rendering system facilitates the protection of rendered digital works which have been rendered on a system which controls the distribution and use of digital works through the use of dynamically generated watermark information that is embedded in the rendered output. The watermark data typically provides information relating to the owner of the digital work, the rights associated with the rendered copy of the digital work and when and where the digital work was rendered. This information will typically aid in deterring or preventing unauthorized copying of the rendered work to be made. The system for controlling distribution and use of digital works provides for attaching persistent usage rights to a digital work. Digital works are transferred between repositories which are used to request and grant access to digital works. Such repositories are also coupled to credit servers which provide for payment of any fees incurred as a result of accessing a digital work.

28 Claims, 13 Drawing Sheets





(12) **United States Patent**
Laroche

(10) **Patent No.:** **US 6,453,252 B1**
(45) **Date of Patent:** **Sep. 17, 2002**

(54) **PROCESS FOR IDENTIFYING AUDIO CONTENT**

(75) **Inventor:** **Jean Laroche, Santa Cruz, CA (US)**

(73) **Assignee:** **Creative Technology Ltd., Singapore (SG)**

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **09/570,679**

(22) **Filed:** **May 15, 2000**

(51) **Int. Cl.⁷** **G06F 17/00**

(52) **U.S. Cl.** **702/75; 702/73**

(58) **Field of Search** 702/57, 71, 73, 702/75; 73/432.1; 116/1; 324/76.12, 76.19; 381/124; 386/75, 96

(56) **References Cited**

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Primary Examiner—John S. Hilten

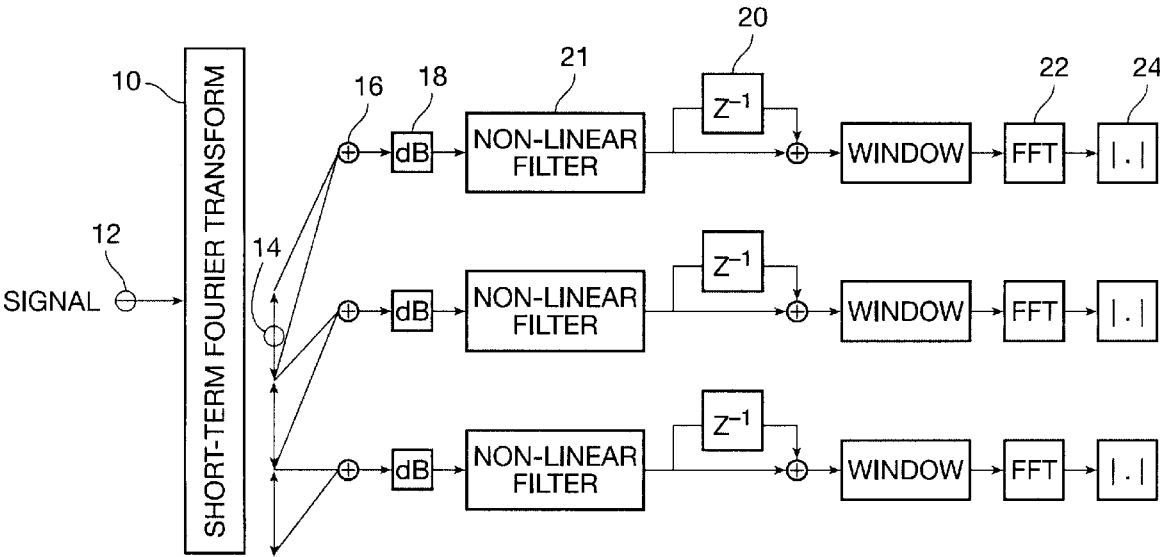
Assistant Examiner—Douglas N Washburn

(74) *Attorney, Agent, or Firm*—Townsend and Townsend and Crew LLP

(57) **ABSTRACT**

A fingerprint of an audio signal is generated based on the energy content in frequency subbands. Processing techniques assure a robust identification fingerprint that will be useful for signals altered subsequent to the generation of the fingerprint. The fingerprint is compared to a database to identify the audio signal.

10 Claims, 1 Drawing Sheet





(12) **United States Patent**
Collart

(10) **Patent No.:** **US 6,405,203 B1**
(45) **Date of Patent:** **Jun. 11, 2002**

(54) **METHOD AND PROGRAM PRODUCT FOR PREVENTING UNAUTHORIZED USERS FROM USING THE CONTENT OF AN ELECTRONIC STORAGE MEDIUM**

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6,246,778 B1 * 6/2001 Moore 382/103

(75) **Inventor:** **Todd R. Collart, Los Altos, CA (US)**
(73) **Assignee:** **Research Investment Network, Inc., Irvine, CA (US)**

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **09/295,689**
(22) **Filed:** **Apr. 21, 1999**
(51) **Int. Cl.⁷** **G06F 15/173**
(52) **U.S. Cl.** **707/10; 707/104; 705/26; 709/203; 709/219; 382/205**
(58) **Field of Search** **707/3, 9, 10, 104, 707/513, 102; 713/155, 200; 711/152, 205; 705/26, 23, 18; 709/203, 219; 382/103**

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European Patent Office, Patent Abstracts of Japan: Publication No. 10063562, Publication date Jun. 03, 1998; Application Date Aug. 21, 1996, Application No. 08219994; Applicant Hitachi Ltd; Inventor Kuwabara Teiji; Int. Cl. G06F 12/00 G06F13/00 G06F 13/00; Title: Package Medium, Electronic Mail and Terminal Equipment.

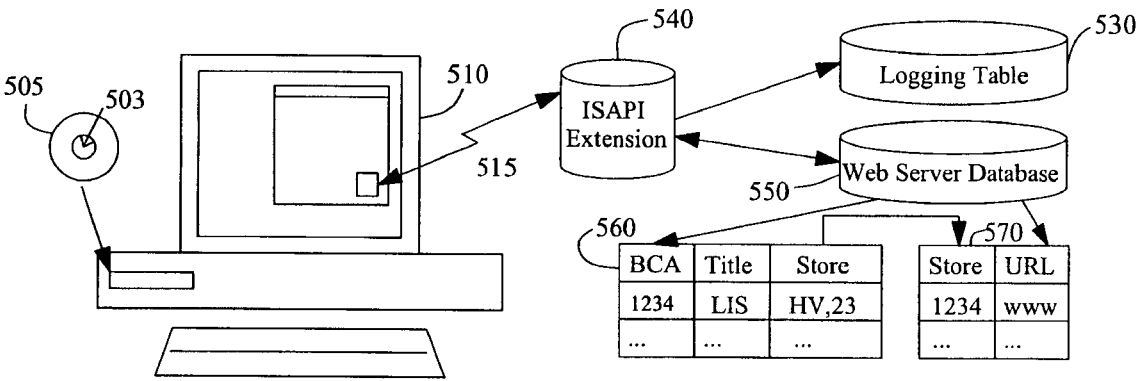
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Primary Examiner—Jean R. Homere
(74) *Attorney, Agent, or Firm*—Keiji Masaki; Steve A. Wong

(57) **ABSTRACT**

A system, method, and article of manufacture is provided for tracking the distribution of content electronically. First, an electronic storage medium tracking identifier is incorporated onto an electronic storage medium and stored on a database. Next, a package tracking identifier is situated onto a package in which the electronic storage medium is stored. The electronic storage medium is then tracked while being shipped between various entities using the tracking identifier on the package. Further, the electronic storage medium may be identified using the tracking identifier on the electronic storage medium in order to afford various advertising, security, support, or retail-related features.

20 Claims, 24 Drawing Sheets





US006665489B2

(12) **United States Patent**
Collart

(10) **Patent No.:** **US 6,665,489 B2**
(45) **Date of Patent:** ***Dec. 16, 2003**

(54) **SYSTEM, METHOD AND ARTICLE OF MANUFACTURING FOR AUTHORIZING THE USE OF ELECTRONIC CONTENT UTILIZING A LASER-CENTRIC MEDIUM AND A NETWORK SERVER**

(75) **Inventor:** **Todd R. Collart, Los Altos, CA (US)**
(73) **Assignee:** **Research Investment Network, Inc., Irvine, CA (US)**

(*) **Notice:** This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **09/295,964**
(22) **Filed:** **Apr. 21, 1999**
(65) **Prior Publication Data**
US 2003/0133702 A1 Jul. 17, 2003

(51) **Int. Cl.⁷** **H04N 5/91; H04N 5/85**
(52) **U.S. Cl.** **386/94; 386/46; 386/125**
(58) **Field of Search** 386/94, 125, 126, 386/105, 106, 104, 52, 46, 45, 39, 40, 4, 1, 124, 55, 60, 95; H04N 5/91, 5/85

(56) **References Cited**
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4,967,185	A	10/1990	Montean
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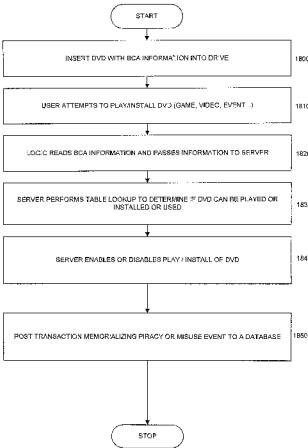
(List continued on next page.)

Primary Examiner—Robert Chevalier
(74) *Attorney, Agent, or Firm*—Keiji Masaki; Steve A. Wong; Caroline T. Do

(57) **ABSTRACT**

A system, method, and article of manufacture is provided for tracking the distribution of content electronically. First, an electronic storage medium tracking identifier is incorporated onto an electronic storage medium and stored on a database. Next, a package tracking identifier is situated onto a package in which the electronic storage medium is stored. The electronic storage medium is then tracked while being shipped between various entities using the tracking identifier on the package. Further, the electronic storage medium may be identified using the tracking identifier on the electronic storage medium in order to afford authorized use of the information contained on the electronic storage medium.

10 Claims, 24 Drawing Sheets





US005629980A

United States Patent [19]
Stefik et al.

[11] **Patent Number:** **5,629,980**
[45] **Date of Patent:** **May 13, 1997**

[54] **SYSTEM FOR CONTROLLING THE DISTRIBUTION AND USE OF DIGITAL WORKS**

[75] **Inventors:** **Mark J. Stefik, Woodside; Michalene M. Casey, Morgan Hill, both of Calif.**

[73] **Assignee:** **Xerox Corporation, Stamford, Conn.**

[21] **Appl. No.:** **344,042**

[22] **Filed:** **Nov. 23, 1994**

[51] **Int. Cl.⁶** **H04L 9/00**

[52] **U.S. Cl.** **380/4**

[58] **Field of Search** **380/4; 235/380**

[56] **References Cited**

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Primary Examiner—Salvatore Cangialosi
Attorney, Agent, or Firm—Richard B. Domingo

[57] **ABSTRACT**

A system for controlling use and distribution of digital works. In the present invention, the owner of a digital work attaches usage rights to that work. Usage rights are granted by the "owner" of a digital work to "buyers" of the digital work. The usage rights define how a digital work may be used and further distributed by the buyer. Each right has associated with it certain optional specifications which outline the conditions and fees upon which the right may be exercised. Digital works are stored in a repository. A repository will process each request to access a digital work by examining the corresponding usage rights. Digital work playback devices, coupled to the repository containing the work, are used to play, display or print the work. Access to digital works for the purposes of transporting between repositories (e.g. copying, borrowing or transfer) is carried out using a digital work transport protocol. Access to digital works for the purposes of replay by a digital work playback device (e.g. printing, displaying or executing) is carried out using a digital work playback protocol.

31 Claims, 13 Drawing Sheets

